

# Ulrich A. Hoensch

Department of Mathematics  
Rocky Mountain College  
1511 Poly Drive  
Billings, MT 59102

Phone: 406-657-1126  
FAX: 406-259-9751  
hoenschu@rocky.edu  
[www.rocky.edu/~hoenschu](http://www.rocky.edu/~hoenschu)

## EDUCATION

- Ph.D. in Mathematics**      **May 2003, Michigan State University,  
East Lansing, Michigan.**  
Thesis Title: *Horseshoe-type Diffeomorphisms with a  
Homoclinic Tangency at the Boundary of Hyperbolicity.*  
Thesis Adviser: Sheldon E. Newhouse.
- M.S. in Mathematics**      **February 1996, Technical University Darmstadt,  
Darmstadt, Germany.**  
Thesis Title: *Topological Minimax Theorems* (in German).  
Thesis Adviser: Jürgen Kindler.

## PROFESSIONAL EXPERIENCE

- August 2009-Present**      **Associate Professor of Mathematics,**  
Rocky Mountain College, Billings, Montana.
- August 2003-August 2009**      **Assistant Professor of Mathematics,**  
Rocky Mountain College, Billings, Montana.
- August 1996-August 2003**      **Graduate Student and Teaching Assistant,**  
Department of Mathematics, Michigan State University,  
East Lansing, Michigan.

## TEACHING EXPERIENCE AND LIST OF COURSES

- August 2003-Present**      **Rocky Mountain College.**  
*Math Major/Minor Courses:* Calculus III, Linear Algebra,  
Differential Equations, Abstract Algebra II, Modern  
Geometric Theories, Numerical Methods, Complex Variables,  
Mathematical Statistics, Real Variables.  
*Special Topics Courses:* Understanding Chaos,  
Making and Breaking Codes, Math Through the Ages.  
*Independent Study:* Topology I.  
*Service Courses:* College Algebra, Probability and Statistics,  
Trigonometry/Precalculus, Calculus I, Calculus II.  
*Graduate Courses:* Biostatistics (Physician Assistant Program).
- August 1996-August 2003**      **Michigan State University.**  
College Algebra, Precalculus, Applied Calculus,  
Calculus I, Calculus II, Differential Equations.

## COMMITTEES, SERVICE AND ADVISING

Fall 2012-Present	<b>Faculty Evaluation Committee,</b> Rocky Mountain College.
Fall 2004-Present	<b>Academic Advising,</b> Rocky Mountain College.
Fall 2009-Spring 2011	<b>Academic Standards Committee,</b> Rocky Mountain College.
Fall 2008-Spring 2009	<b>Faculty Development Committee,</b> Rocky Mountain College.
Fall 2007-Spring 2008	<b>Faculty Development Committee (Chair),</b> Rocky Mountain College.
Fall 2006-Spring 2008	<b>Assessment Committee,</b> Rocky Mountain College.
Fall 2004-Spring 2006	<b>Honors Board,</b> Rocky Mountain College.

## PUBLICATIONS

- U. Hoensch, **Differential Equations and Applications Using *Mathematica***; published as an Open Textbook (2012), 331 pages, available as PDF at [www.rocky.edu/~hoenschu](http://www.rocky.edu/~hoenschu).
- U. Hoensch, **A “Paperclip” Approach to Curvature, Torsion and the Frénet-Serret Formulas**, *College Mathematics Journal* Vol. 40, No.2, March 2009, 113-118.
- U. Hoensch, **Some hyperbolicity results for Henon-like diffeomorphisms**, *Nonlinearity* **21** (2008) 587-611.
- U. Hoensch, **Book Review:** Dynamical Systems with Applications Using Mathematica, by Stephen Lynch, Birkhäuser (2007). Published on-line at <http://www.dynamicalsystems.org/ma/ma/display?item=243>.

## TALKS AND PRESENTATIONS

- **August 2013:** *Creating and Analyzing Chaotic Attractors Using Mathematica*, MAA Math-Fest, Hartford, CT.
- **April 2013:** *Differential Equations and Mathematica*, Rocky Mountain College, Billings, MT.
- **February 2007:** *Homoclinic Points, Symbolic Dynamics, and Hyperbolicity*, Bridgewater State College, Bridgewater, MA.
- **January 2006:** *Java Applets for a Cryptology Course*, AMS-MAA Joint Conferences, San Antonio, TX.
- **September 2005:** *Some Examples in Cryptology*, Roundup High School and Billings Central High School.
- **February 2005:** *Examples of Chaotic Attractors and Their Fractal Dimension*, Billings West High School.

## OTHER PROFESSIONAL ACTIVITIES

- **Faculty Adviser, Yellowstone River Research Center**, 2011-present.
- **Adjunct Faculty, Physician Assistant Program**, Rocky Mountain College, 2008-present.
- **Scientific Judge, Science Expo**, 2008-present; sponsored by Billings Clinic.
- **Scientific Judge, Science Bowl**, 2006-present; sponsored by U.S. Department of Energy.

## CONFERENCES AND CONTINUED EDUCATION

- **MAA MathFest**, Hartford, CT, August 2-3, 2013.
- **SIAM Annual Meeting**, Minneapolis, MN, July 9-10, 2012.
- **MAA MathFest**, Pittsburgh, PA, August 5-7, 2010.
- **AP Statistics Reader**, Louisville, KY, June 6-11, 2008.
- **Rocky Mountain Conference on Dynamical Systems**, Park City, UT, May 12-14, 2008.
- **AMS-MAA Joint Conferences**, New Orleans, LA, January 5-7, 2007.
- **AMS-MAA Joint Conferences**, San Antonio, TX, January 12-15, 2006.
- **MAA MathFest**, Albuquerque, NM, August 4-6, 2005: MAA Minicourse *Teaching a Course in the History of Mathematics*.
- **AMS-MAA Joint Conferences**, Atlanta, GA, January 5-7, 2005: MAA Minicourse *Getting Students Involved in Undergraduate Research*.
- **NSF Day at South Dakota School of Mines and Technology**, September 16, 2004.
- **NSF National Chautauqua Workshop**, July 19-21, 2004: *Teaching Differential Equations from a Dynamical Systems Viewpoint*.
- **Midwest Dynamical Systems Seminars** (2000-2002), Northwestern University.
- **Semi-annual Workshop on Dynamical Systems** (1999-2002), Penn State University/University of Maryland.

## GRANTS, SPECIAL PROGRAMS AND AWARDS

- **NASA EPSCoR Travel Grant**, Montana State University Bozeman, Summer 2013.
- **NASA EPSCoR Travel Grant**, Montana State University Bozeman, Summer 2012.
- **Title III Minigrant**, Rocky Mountain College, Summer 2012.
- **Sabbatical Leave**, Rocky Mountain College, Fall Semester 2011 and Spring Semester 2012.
- **NASA EPSCoR Travel Grant**, Montana State University Bozeman, Summer 2010.

- **NASA EPSCoR Travel Grant**, Montana State University Bozeman, Summer 2006.
- **Dissertation Completion Fellowship**, Michigan State University, Spring 2003.

## **PROFESSIONAL ORGANIZATIONS**

- **American Mathematical Society** (1996-Present).
- **Mathematical Association of America** (1999-Present).
- **Society for Industrial and Applied Mathematics** (2008-Present).

## **SOFTWARE/PROGRAMMING EXPERIENCE**

- **Computer Algebra Systems:** Mathematica.
- **Statistical Analysis:** SPSS.
- **Web Development:** HTML, JavaScript.
- **Academic Programming:** Java, Java AWT/Swing, NetBeans IDE.